

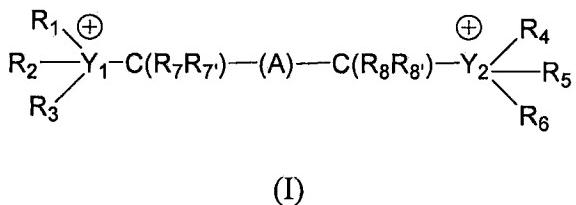
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Examiner: Binta M. Robinson
Date of Office Action: 29 July 2010
Applicant(s): Widmer *et al.*
Date of Response: November 29, 2010

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the above identified application.

Listing of Claims:

1. (Currently Amended) A bis-cationic compound comprising a bis-cation and an anion, wherein the bis-cation of the compound is of Formula (I)



wherein:

- (1) Y₁ and Y₂ may be the same or different and are independently selected from N and P;

R₁ to R₆ may be the same or different and are independently selected from the group consisting of optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aryl, optionally substituted aralkyl, optionally substituted heteroaryl, and optionally substituted heterocycloalkyl, wherein said substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), OC(O)(C₁₋₆ alkyl), NO₂, amino, hydroxyC₁₋₆ alkyl, aryl, OC(O)Ph, and =C(Ph)₂; or

R₁ and R₂ together with the Y₁ group to which they are attached, or R₁, R₂ and R₃ together with the Y₁ group to which they are attached may optionally form a heterocycloalkyl group; and R₄ and R₅ together with the Y₂ group to which they are attached, or R₄, R₅ and R₆ together with the Y₂ group to which they are attached may optionally form a heterocycloalkyl group; wherein each of said heterocycloalkyl groups may be optionally substituted with one or

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more groups selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), OC(O)(C₁₋₆ alkyl), NO₂, amino, hydroxy C₁₋₆ alkyl, aryl, OC(O)Ph, and =C(Ph)₂;

R₇, R_{7'}, R₈ and R_{8'} may be the same or different and are independently selected from hydrogen, F and Cl;

A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, optionally substituted alkynylene, optionally substituted phenyl, optionally substituted C₅₋₇ cycloalkyl, and -C(O)-, wherein the length of A is from 5 to 18 carbon atoms, and wherein the substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, NO₂, C(O)R₁₀, OR₁₁, CH₂OR₁₁, CH₂NR₁₂R₁₃, SR₁₁, NR₁₂R₁₃, CONR₁₂R₁₃, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

R₁₀ is selected from OH, OR₁₁, C₁₋₆ alkyl;

R₁₁ is selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aryl, and optionally substituted aralkyl, wherein said optional substituents are independently selected from C₁₋₄ alkyl, hydroxyl and halogen;

R₁₂ and R₁₃ are independently selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aralkyl, optionally substituted alkylheteroaryl, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁; or

R₁₂ and R₁₃, together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁;

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and when $Y_1 = Y_2 = N$, A comprises one or more groups selected from substituted alkylene, substituted alkenylene, substituted alkynylene, substituted phenyl, substituted C_{5-7} cycloalkyl, and $-C(O)-$, wherein the length of A is from 5 to 18 carbon atoms, and wherein the substituents are independently selected from C_{4-6} alkyl, C_{4-6} alkenyl, C_{4-6} alkynyl, hydroxyl, halogen, NO_2 , $C(O)R_{10}$, OR_{11} , CH_2OR_{11} , $CH_2NR_{12}R_{13}$, SR_{11} , $NR_{12}R_{13}$, $CONR_{12}R_{13}$, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

R_{10} is selected from OH, OR_{11} , C_{1-6} alkyl;

R_{11} is selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, optionally substituted C_{3-10} cycloalkyl, optionally substituted aryl, and optionally substituted aralkyl, wherein said optional substituents are independently selected from C_{1-4} alkyl, hydroxyl and halogen;

R_{12} and R_{13} are independently selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, optionally substituted C_{3-10} cycloalkyl, optionally substituted aralkyl, optionally substituted alkylheteroaryl, wherein said substituents are independently selected from C_{1-4} alkyl, hydroxyl, halogen, amino, and $C(O)OR_{11}$; or

R_{12} and R_{13} , together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C_{1-4} alkyl, hydroxyl, halogen, amino, and $C(O)OR_{11}$;

and when $Y_1 = Y_2 = P$, A comprises one or more groups selected from substituted alkylene, substituted alkenylene, substituted alkynylene, substituted phenyl, substituted C_{5-7} cycloalkyl, and $-C(O)-$, wherein the length of A is from 5 to 18 carbon atoms, and wherein the substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, hydroxyl, halogen, NO_2 , $C(O)R_{10}$, OR_{11} , CH_2OR_{11} , $CH_2NR_{12}R_{13}$, SR_{11} , $NR_{12}R_{13}$, $CONR_{12}R_{13}$, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

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R₁₀ is selected from OH, OR₁₁, C₁₋₆ alkyl;

R₁₁ is selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aryl, and optionally substituted aralkyl, wherein said optional substituents are independently selected from C₁₋₄ alkyl, hydroxyl and halogen;

R₁₂ and R₁₃ are independently selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aralkyl, optionally substituted alkylheteroaryl, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁; or

R₁₂ and R₁₃, together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁;

and when A is -CH₂-C(O)PhCH₂CH₂-Ph-C(O)-CH₂-, and R₁ and R₄ are hydroxy substituted ethyl, then one of R₂, R₃, R₅ and R₆ is different;

or:

(2) Y₁ and Y₂ may be the same or different and are independently selected from N and P;

R₁ to R₆ may be the same or different and are independently selected from the group consisting of optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aryl, optionally substituted aralkyl, optionally substituted heteroaryl, and optionally substituted heterocycloalkyl, wherein said substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), OC(O)(C₁₋₆ alkyl), NO₂, amino, hydroxyC₁₋₆ alkyl, aryl, OC(O)Ph, and =C(Ph)₂; or

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R₁ and R₂ together with the Y₁ group to which they are attached, or R₁, R₂ and R₃ together with the Y₁ group to which they are attached may optionally form a heterocycloalkyl group; and R₄ and R₅ together with the Y₂ group to which they are attached, or R₄, R₅ and R₆ together with the Y₂ group to which they are attached may optionally form a heterocycloalkyl group; wherein each of said heterocycloalkyl groups may be optionally substituted with one or more groups selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), OC(O)(C₁₋₆ alkyl), NO₂, amino, hydroxy C₁₋₆ alkyl, aryl, OC(O)Ph, and =C(Ph)₂;

R₇, R₇, R₈ and R_{8'} may be the same or different and are independently selected from F and Cl;

A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, optionally substituted alkynylene, optionally substituted phenyl, optionally substituted C₅₋₇ cycloalkyl, and -C(O)-, wherein the length of A is from 5 to 18 carbon atoms, and wherein the substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, NO₂, C(O)R₁₀, OR₁₁, CH₂OR₁₁, CH₂NR₁₂R₁₃, SR₁₁, NR₁₂R₁₃, CONR₁₂R₁₃, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

R₁₀ is selected from OH, OR₁₁, C₁₋₆ alkyl;

R₁₁ is selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aryl, and optionally substituted aralkyl, wherein said optional substituents are independently selected from C₁₋₄ alkyl, hydroxyl and halogen;

R₁₂ and R₁₃ are independently selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aralkyl, optionally substituted alkylheteroaryl, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁; or

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R₁₂ and R₁₃, together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁;

or:

(3) Y₁ and Y₂ are both nitrogen;

R₁ to R₆ may be the same or different and are independently selected from the group consisting of substituted C₁₋₁₀ alkyl, substituted C₂₋₁₀ alkenyl, substituted C₂₋₁₀ alkynyl, substituted C₃₋₁₀ cycloalkyl, substituted aryl, substituted aralkyl, optionally substituted heteroaryl, and optionally substituted heterocycloalkyl, wherein said substituents are independently selected from C₄₋₆ alkyl, C₄₋₆ alkenyl, C₄₋₆ alkynyl, hydroxyl, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), OC(O)(C₁₋₆ alkyl), NO₂, amino, hydroxyC₁₋₆ alkyl, aryl, OC(O)Ph, and =C(Ph)₂;

R₇, R₇, R₈ and R_{8'} may be the same or different and are independently selected from hydrogen, F and Cl;

R₁ and R₂ together with the Y₁ group to which they are attached, or R₁, R₂ and R₃ together with the Y₁ group to which they are attached may optionally form a heterocycloalkyl group; and R₄ and R₅ together with the Y₂ group to which they are attached, or R₄, R₅ and R₆ together with the Y₂ group to which they are attached may optionally form a heterocycloalkyl group; wherein each of said heterocycloalkyl groups may be optionally substituted with one or more groups selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), OC(O)(C₁₋₆ alkyl), NO₂, amino, hydroxy C₁₋₆ alkyl, aryl, OC(O)Ph, and =C(Ph)₂;

A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, optionally substituted alkynylene, optionally substituted phenyl, optionally substituted C₅₋₇ cycloalkyl, and -C(O)-, wherein the length of A is from 5 to 18 carbon atoms, and wherein the substituents are independently selected from C₁₋₆ alkyl, C₂₋₆

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alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, NO₂, C(O)R₁₀, OR₁₁, CH₂OR₁₁, CH₂NR₁₂R₁₃, SR₁₁, NR₁₂R₁₃, CONR₁₂R₁₃, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

R₁₀ is selected from OH, OR₁₁, C₁₋₆ alkyl;

R₁₁ is selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aryl, and optionally substituted aralkyl, wherein said optional substituents are independently selected from C₁₋₄ alkyl, hydroxyl and halogen;

R₁₂ and R₁₃ are independently selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aralkyl, optionally substituted alkylheteroaryl, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁; or

R₁₂ and R₁₃, together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁;

wherein when -C(R₇R₇)-(A)-(CR₈R₈)- is 9, 10, 11 or 12 alkylene groups and when R₁, R₂ and Y₁ form a heterocycloalkyl group and when R₄, R₅ and Y₂ form a heterocycloalkyl group, then R₃ and R₆ are different; and

wherein when -C(R₇R₇)-(A)-(CR₈R₈)- is 9, 10 or 12 alkylene groups and R₁, R₂, R₃ and Y₁ form a bicyclic group, then R₁, R₂, R₃ and Y₁ together are different to R₄, R₅, R₆ and Y₂ when taken together;

or:

(4) Y₁ and Y₂ are both nitrogen;

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R₁ to R₆ may be the same or different and are independently selected from the group consisting of optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aryl, optionally substituted aralkyl, optionally substituted heteroaryl, and optionally substituted heterocycloalkyl, wherein said substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), OC(O)(C₁₋₆ alkyl), NO₂, amino, hydroxyC₁₋₆ alkyl, aryl, OC(O)Ph, and =C(Ph)₂; or

R₁ and R₂ together with the Y₁ group to which they are attached, or R₁, R₂ and R₃ together with the Y₁ group to which they are attached may optionally form a heterocycloalkyl group; and R₄ and R₅ together with the Y₂ group to which they are attached, or R₄, R₅ and R₆ together with the Y₂ group to which they are attached may optionally form a heterocycloalkyl group; wherein each of said heterocycloalkyl groups may be optionally substituted with one or more groups selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), OC(O)(C₁₋₆ alkyl), NO₂, amino, hydroxy C₁₋₆ alkyl, aryl, OC(O)Ph, and =C(Ph)₂;

R₇, R₇, R₈ and R_{8'} may be the same or different and are independently selected from hydrogen, F and Cl;

A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, optionally substituted alkynylene, optionally substituted phenyl, optionally substituted C₅₋₇ cycloalkyl, and -C(O)-, wherein the length of A is from 5 to 18 carbon atoms, and wherein the substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, NO₂, C(O)R₁₀, OR₁₁, CH₂OR₁₁, CH₂NR₁₂R₁₃, SR₁₁, NR₁₂R₁₃, CONR₁₂R₁₃, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

R₁₀ is selected from OH, OR₁₁, C₁₋₆ alkyl;

R₁₁ is selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aryl, and optionally substituted aralkyl,

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wherein said optional substituents are independently selected from C₁₋₄ alkyl, hydroxyl and halogen;

R₁₂ and R₁₃ are independently selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aralkyl, optionally substituted alkylheteroaryl, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁; or

R₁₂ and R₁₃, together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁;

wherein when –C(R₇R_{7'})-(A)-(CR₈R_{8'})— is 12 alkylene groups, one of R₁ to R₆ is different; and

wherein when –C(R₇R_{7'})-(A)-(CR₈R_{8'})— is 10 alkylene groups and four of R₁ to R₆ are C₁₋₃ alkyl, the remaining two of R₁ to R₆ are different; and

wherein when –C(R₇R_{7'})-(A)-(CR₈R_{8'})— is 9, 10, 11 or 12 alkylene groups and when R₁, R₂ and Y₁ form a heterocycloalkyl group and when R₄, R₅ and Y₂ form a heterocycloalkyl group, then R₃ and R₆ are different; and

wherein when –C(R₇R_{7'})-(A)-(CR₈R_{8'})— is 9, 10 or 12 alkylene groups and R₁, R₂, R₃ and Y₁ form a bicyclic group, then R₁, R₂, R₃ and Y₁ together are different to R₄, R₅, R₆ and Y₂ when taken together;

or:

(5) Y₁ and Y₂ are both nitrogen;

R₁ to R₆ may be the same or different and are independently selected from the group consisting of optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted

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aryl, optionally substituted aralkyl, optionally substituted heteroaryl, and optionally substituted heterocycloalkyl, wherein said substituents are independently selected from C₄₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), OC(O)(C₁₋₆ alkyl), NO₂, amino, hydroxyC₁₋₆ alkyl, aryl, OC(O)Ph, and =C(Ph)₂; or

R₁ and R₂ together with the Y₁ group to which they are attached, or R₁, R₂ and R₃ together with the Y₁ group to which they are attached may optionally form a heterocycloalkyl group; and R₄ and R₅ together with the Y₂ group to which they are attached, or R₄, R₅ and R₆ together with the Y₂ group to which they are attached may optionally form a heterocycloalkyl group; wherein each of said heterocycloalkyl groups is substituted with one or more groups selected from C₄₋₆ alkyl, C₄₋₆ alkenyl, C₄₋₆ alkynyl, hydroxyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), OC(O)(C₁₋₆ alkyl), NO₂, amino, hydroxy C₄₋₆ alkyl, aryl, OC(O)Ph, and =C(Ph)₂;

R₇, R₇, R₈ and R₈ may be the same or different and are independently selected from hydrogen, F and Cl;

A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, optionally substituted alkynylene, optionally substituted phenyl, optionally substituted C₅₋₇ cycloalkyl, and -C(O)-, wherein the length of A is from 5 to 18 carbon atoms, and wherein the substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, NO₂, C(O)R₁₀, OR₁₁, CH₂OR₁₁, CH₂NR₁₂R₁₃, SR₁₁, NR₁₂R₁₃, CONR₁₂R₁₃, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

R₁₀ is selected from OH, OR₁₁, C₁₋₆ alkyl;

R₁₁ is selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aryl, and optionally substituted aralkyl, wherein said optional substituents are independently selected from C₁₋₄ alkyl, hydroxyl and halogen;

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R₁₂ and R₁₃ are independently selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aralkyl, optionally substituted alkylheteroaryl, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁; or

R₁₂ and R₁₃, together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁;

wherein when –C(R₇R_{7'})-(A)-(CR₈R_{8'})– is 12 alkylene groups, one of R₁ to R₆ is different; and

wherein when –C(R₇R_{7'})-(A)-(CR₈R_{8'})– is 10 alkylene groups and four of R₁ to R₆ are C₁₋₃ alkyl, the remaining two of R₁ to R₆ are different; and

wherein when –C(R₇R_{7'})-(A)-(CR₈R_{8'})– is 9, 10 or 12 alkylene groups and R₁, R₂, R₃ and Y₁ form a bicyclic group, then R₁, R₂, R₃ and Y₁ together are different to R₄, R₅, R₆ and Y₂ when taken together;

or:

(6) Y₁ and Y₂ are both P;

R₁ to R₆ may be the same or different and are independently selected from the group consisting of optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aryl, optionally substituted aralkyl, optionally substituted heteroaryl, and optionally substituted heterocycloalkyl, wherein said substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), OC(O)(C₁₋₆ alkyl), NO₂, amino, hydroxyC₁₋₆ alkyl, aryl, OC(O)Ph, and =C(Ph)₂; wherein at least one of R₁ to R₆ is substituted; or

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R₁ and R₂ together with the Y₁ group to which they are attached, or R₁, R₂ and R₃ together with the Y₁ group to which they are attached may optionally form a heterocycloalkyl group; and R₄ and R₅ together with the Y₂ group to which they are attached, or R₄, R₅ and R₆ together with the Y₂ group to which they are attached may optionally form a heterocycloalkyl group; wherein each of said heterocycloalkyl groups may be optionally substituted with one or more groups selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), OC(O)(C₁₋₆ alkyl), NO₂, amino, hydroxy C₁₋₆ alkyl, aryl, OC(O)Ph, and =C(Ph)₂;

R₇, R_{7'}, R₈ and R_{8'} may be the same or different and are independently selected from hydrogen, F and Cl;

A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, optionally substituted alkynylene, optionally substituted phenyl, optionally substituted C₅₋₇ cycloalkyl, and -C(O)-, wherein the length of A is from 5 to 18 carbon atoms, and wherein the substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, NO₂, C(O)R₁₀, OR₁₁, CH₂OR₁₁, CH₂NR₁₂R₁₃, SR₁₁, NR₁₂R₁₃, CONR₁₂R₁₃, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

R₁₀ is selected from OH, OR₁₁, C₁₋₆ alkyl;

R₁₁ is selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aryl, and optionally substituted aralkyl, wherein said optional substituents are independently selected from C₁₋₄ alkyl, hydroxyl and halogen;

R₁₂ and R₁₃ are independently selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aralkyl, optionally substituted alkylheteroaryl, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁; or

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R₁₂ and R₁₃, together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C₁₋₄ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₁;

provided that the compound bis-cation of formula (I) is not selected from the following:

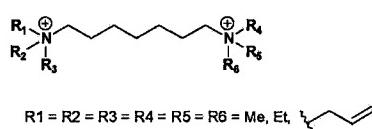
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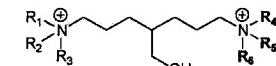
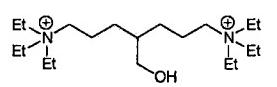
R1 = R2 = R3 = R4 = R5 = R6 = Me, Et,

R1 = R2 = R4 = R5 = Me, R3 = R6 = Et, Pr

R1 = R2 = R4 = R5 = Et, R3 = R6 = Me

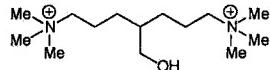
R1 = R2 = R4 = R5 = Pr, R3 = R6 = Me

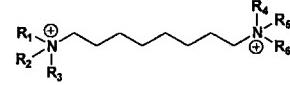
R1 = R2 = R4 = R5 = allyl, R3 = R6 = Me



R1 = R2 = R4 = R5 = Me, R3 = R6 = Pr

R1 = R2 = R4 = R5 = Pr, R3 = R6 = Me



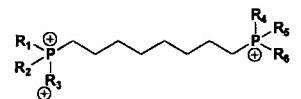


R1 = R2 = R3 = R4 = R5 = R6 = Me, Et, Pr, Bu, pentyl, allyl

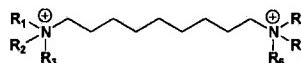
R1 = R2 = R4 = R5 = Me, R3 = R6 = Pr, Bu, Decyl

R1 = R4 = Me, R2 = R3 = R5 = R6 = Hexyl, allyl

R1 = R4 = Me, R2 = R5 = Bu, R3 = R6 = octyl



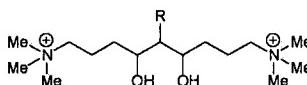
R1 = R2 = R3 = R4 = R5 = R6 = n-Bu, t-Bu, octyl



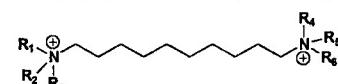
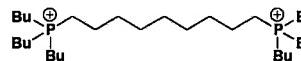
R1 = R2 = R3 = R4 = R5 = R6 = Me, Et, allyl

R1 = R2 = R4 = R5 = Me, R3 = R6 = Pr, pentyl

R1 = R2 = R4 = R5 = allyl, R3 = R6 = Et



R = Pr, H, pentyl, hexyl, butyl, Me, Et

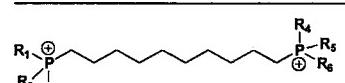
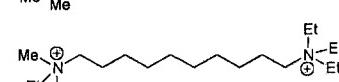
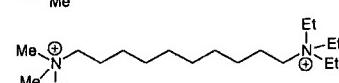
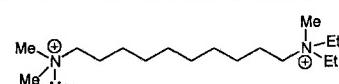


R1 = R2 = R3 = R4 = R5 = R6 = Me, Pr, pentyl, butyl, allyl, ethyl, hexyl

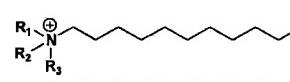
R1 = R2 = R3 = R4 = R5 = R6 = Bu, Et, hexyl, heptyl, pentyl, propyl, decyl, i-Pr, octyl

R1 = R4 = Me, R2 = R3 = R5 = R6 = allyl, ethyl

R1 = R2 = R4 = R5 = Et, R3 = R6 = hexyl

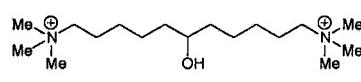


R1 = R2 = R3 = R4 = R5 = R6 = Me, Et, Bu, octyl



R1 = R2 = R3 = R4 = R5 = R6 = Me, Et

R1 = R2 = R4 = R5 = Me, R3 = R6 = pentyl



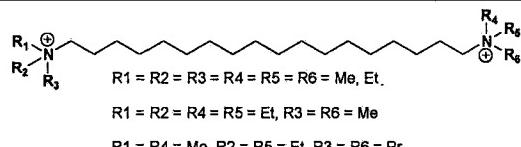
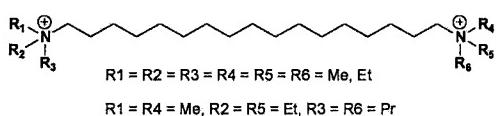
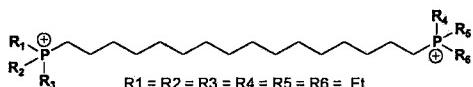
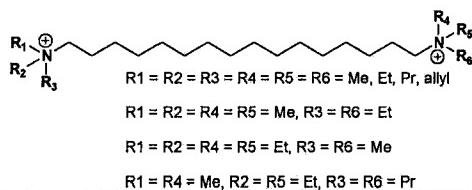
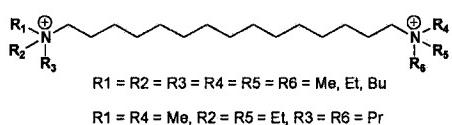
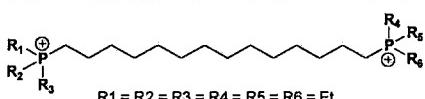
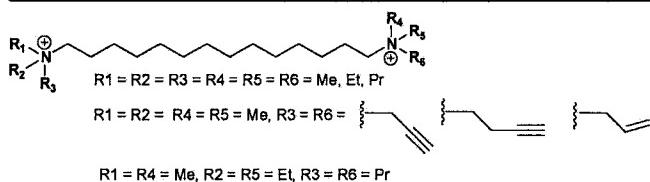
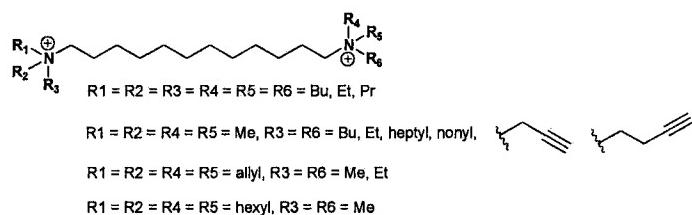
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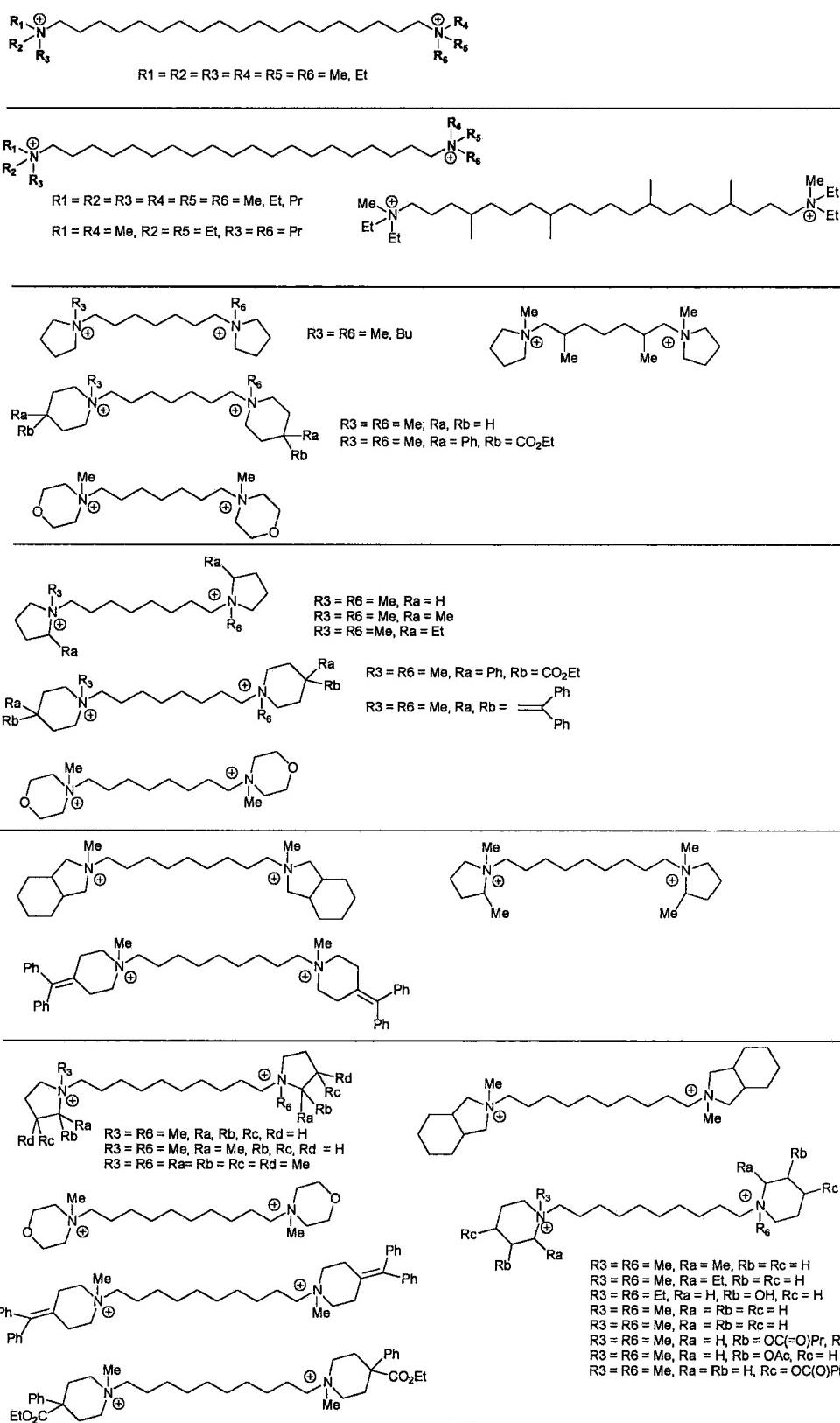
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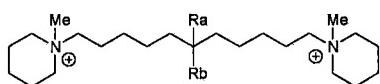
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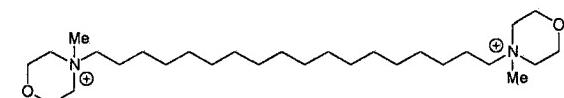
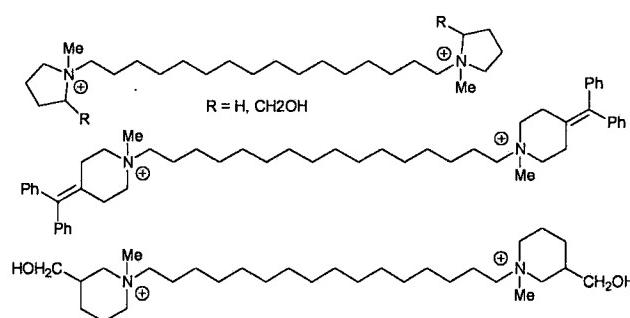
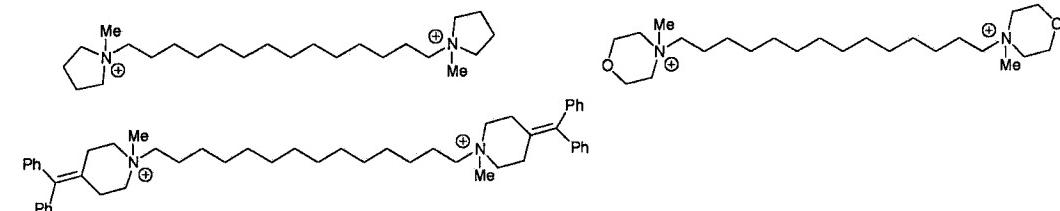
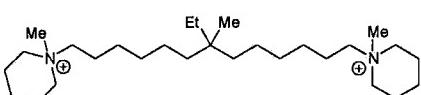
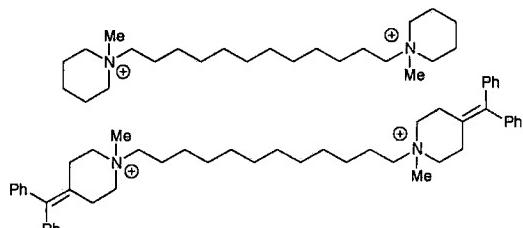
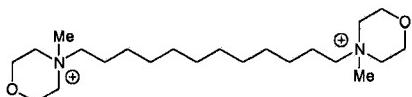
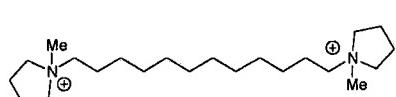
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Ra,Rb = H
Ra = Me, Rb = Et



•

2. (Previously Presented) A compound according to claim 1, wherein Y₁ and Y₂ are each N.

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3. (Previously Presented) A compound according to claim 1, wherein Y₁ and Y₂ are different.

4. (Previously Presented) A compound according to claim 1, wherein R₁ to R₆ are independently selected from the group consisting of optionally substituted C₁₋₁₀ alkyl, optionally substituted C₁₋₁₀ alkylene, optionally substituted aryl, and optionally substituted heterocycloalkyl, or

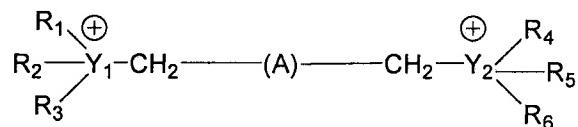
R₁ and R₂ together with the Y₁ group to which they are attached, or R₁, R₂ and R₃ together with the Y₁ group to which they are attached form a heterocycloalkyl group; and R₄ and R₅ together with the Y₂ group to which they are attached, or R₄, R₅ and R₆ together with the Y₂ group to which they are attached form a heterocycloalkyl group;

wherein said optional substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), OC(O)(C₁₋₆ alkyl), NO₂, amino, hydroxy C₁₋₆ alkyl, and aryl.

5. (Previously Presented) A compound according to claim 1, wherein A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, optionally substituted phenyl, and -C(O)-, wherein the substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, hydroxyl, halogen, NO₂, C(O)R₁₀, OR₁₁, CH₂OR₁₁, CH₂NR₁₂R₁₃, SR₁₁, NR₁₂R₁₃, CONR₁₂R₁₃, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl.

6. (Previously Presented) A compound according to claim 1, wherein the length of A is from 5 to 9 carbon atoms.

7. (Previously Presented) A compound according to claim 1, wherein the bis-cation of the compound is of Formula (Ia):



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(Ia)

wherein

Y_1 and Y_2 may be the same or different and are independently selected from N and P;

R_1 to R_6 may be the same or different and are independently selected from the group consisting of optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, optionally substituted C_{3-10} cycloalkyl, optionally substituted aryl, optionally substituted heteroaryl, and optionally substituted heterocycloalkyl, wherein said substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, hydroxyl, halogen, $O(C_{1-6}$ alkyl), $C(O)O(C_{1-6}$ alkyl), NO_2 , amino, hydroxy C_{1-6} alkyl, aryl, and $OC(O)Ph$; or

R_1 and R_2 together with the Y_1 group to which they are attached may optionally form a heterocycloalkyl group; and R_4 and R_5 together with the Y_2 group to which they are attached may optionally form a heterocycloalkyl group; wherein each of said heterocycloalkyl groups may be optionally substituted with one or more groups selected from C_{1-6} alkyl, C_{2-6} alkenyl, hydroxyl, halogen, $O(C_{1-6}$ alkyl), $C(O)O(C_{1-6}$ alkyl), amino, hydroxy C_{1-6} alkyl, and aryl;

A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, and optionally substituted phenyl, wherein the length of A is from 5 to 18 carbon atoms, and wherein the substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, halogen, $C(O)R_{10}$, OR_{11} , SR_{11} , CH_2OR_{11} , $CH_2NR_{12}R_{13}$, $NR_{12}R_{13}$, $CONR_{12}R_{13}$, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

R_{10} is selected from OH , OR_{11} , C_{1-6} alkyl;

R_{11} is selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted C_{2-10} alkenyl, optionally substituted C_{2-10} alkynyl, and optionally substituted C_{3-10} cycloalkyl, wherein said optional substituents are independently selected from C_{1-6} alkyl, C_{2-6} alkenyl, aryl, and hydroxyl;

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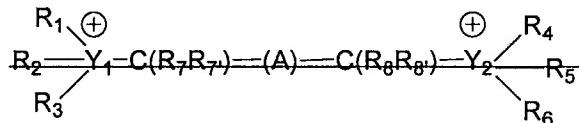
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R₁₂ and R₁₃ are independently selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted alkylheteroaryl, wherein said substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, aryl, hydroxyl, halogen, amino, and C(O)OR₁₁; or

R₁₂ and R₁₃, together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, hydroxyl, halogen, amino, and C(O)OR₁₁₅.

8. (Previously Presented) A compound according to claim 1, selected from 1,11-bis-(tributylammonium)undecane, 1,16-bis-(tributylammonium)hexadecane, 1,12-bis-(tripentylammonium)dodecane, 1,12-bis-(trihexylammonium)dodecane, 1,12-bis-(trioctylammonium)dodecane, 1,12-bis-(triisobutylammonium)dodecane, 1,12-bis-(triisopentylammonium)dodecane, and 1,12-bis-(1-butylpyrrolidinium)dodecane.

9. (Withdrawn - Currently Amended) A method for one or more of treating, inhibiting, and preventing a bacterial or fungal infection in a vertebrate, said method comprising administering to said vertebrate an effective amount of at least one compound of Formula (II):



wherein

~~Y₁ and Y₂ may be the same or different and are independently selected from N and P;~~

~~R₁ to R₆ may be the same or different and are independently selected from the group consisting of optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted~~

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aryl, optionally substituted aralkyl, optionally substituted heteroaryl, and optionally substituted heterocycloalkyl, wherein said substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), NO₂, amino, hydroxy C₁₋₆ alkyl, aryl, OC(O)Ph, and =C(Ph)₂; or

— R₁ and R₂ together with the Y₁ group to which they are attached, or R₁, R₂ and R₃ together with the Y₁ group to which they are attached may optionally form an heterocycloalkyl group; and R₄ and R₅ together with the Y₂ group to which they are attached, or R₄, R₅ and R₆ together with the Y₂ group to which they are attached may optionally form a heterocycloalkyl group; wherein each of said heterocycloalkyl groups may be optionally substituted with one or more groups selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, hydroxyl, and halogen, O(C₁₋₆ alkyl), C(O)O(C₁₋₆ alkyl), NO₂, amino, hydroxy C₁₋₆ alkyl, aryl, and =C(Ph)₂;

— R₇, R₇, R₈ and R₈ may be the same or different and are independently selected from hydrogen, F and Cl;

— A comprises one or more groups selected from optionally substituted alkylene, optionally substituted alkenylene, optionally substituted phenyl, optionally substituted C₅₋₇ cycloalkyl, and C(O), wherein the length of A is from 4 to 18 carbon atoms, wherein the substituents are independently selected from C₁₋₆ alkyl, C₂₋₆ alkenyl, hydroxyl, halogen, nitro, C(O)R₁₀, OR₁₁, CH₂OR₁₁, CH₂NR₁₂R₁₃, SR₁₁, NR₁₂R₁₃, CONR₁₂R₁₃, amino acids, dipeptidyl, tripeptidyl, tetrapeptidyl and pentapeptidyl;

— R₁₀ is selected from OH, OR₁₁, C₁₋₆ alkyl, optionally substituted amino C₁₋₆ alkylsulfonate, optionally substituted amino C₁₋₆ alkylphophonate, optionally substituted amino C₁₋₆ alkyl guanidinyl, and optionally substituted amino C₁₋₆ alkyl tri(C₁₋₆ alkyl)ammonium;

— R₁₁ is selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted amino C₁₋₆ alkylsulfonate, optionally substituted amino C₁₋₆ alkylphophonate, optionally substituted amino C₁₋₆ alkyl guanidinyl, and optionally substituted

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~~amino-C₁₋₆-alkyl-tri(C₁₋₆-alkyl)ammonium, wherein said optional substituents are independently selected from C₁₋₄ alkyl, hydroxyl and halogen~~

~~R₁₂ and R₁₃ are independently selected from the group consisting of hydrogen, optionally substituted C₁₋₁₀ alkyl, optionally substituted C₂₋₁₀ alkenyl, optionally substituted C₂₋₁₀ alkynyl, optionally substituted C₃₋₁₀ cycloalkyl, optionally substituted arylalkyl, optionally substituted alkylheteroaryl, optionally substituted amino-C₁₋₆-alkylsulfonate, optionally substituted amino-C₁₋₆-alkylphosphonate, optionally substituted amino-C₁₋₆-alkyl guanidinyl, and optionally substituted amino-C₁₋₆-alkyl-tri(C₁₋₆-alkyl)ammonium, wherein said substituents are independently selected from C₁₋₃ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₄; or~~

~~R₁₂ and R₁₃, together with the nitrogen atom to which they are attached may form an optionally substituted heterocycloalkyl group, wherein said substituents are independently selected from C₁₋₃ alkyl, hydroxyl, halogen, amino, and C(O)OR₁₄ according to claim 1.~~

10. (Canceled)

11. (Withdrawn) The method according to claim 9, wherein the infection is a fungal infection.

12. (Withdrawn) The method according to claim 9, wherein the infection is a bacterial infection.

13. (Withdrawn - Currently Amended) A method of inhibiting phospholipase in an organism comprising contacting said organism with an effective amount of at least one compound of Formula (I) or at least one compound of Formula (II) according to claim 1.

14. (Withdrawn) The method according to claim 13, wherein the organism is selected from bacteria, fungi, virus, and parasite.

15. (Withdrawn) The method according to claim 13, wherein the phospholipase is Phospholipase B.

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16. (Withdrawn) The method according to claim 13, wherein the organism is selected from the group consisting of: bacteria, fungi and virus.

17. (Withdrawn - Currently Amended) A method for identifying an antimicrobial agent comprising contacting microbial cells with a compound of ~~Formula (I) or Formula (II)~~ according to claim 1 suspected of having antimicrobial properties, determining whether said compound inhibits a microbial phospholipase enzyme, wherein inhibition of said phospholipase enzyme indicates antimicrobial activity, and thereby identifying an antimicrobial agent.

18.-19. (Canceled).